ENDAT-4066i

User's Manual

Rev. 1A

4066i PCB ver: A2 or later

25/05/2007

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Installation Notice

The manufacturer recommends using a grounded plug to ensure proper motherboard operation. Care should be used in proper conjunction with a grounded power receptacle to avoid possible electrical shock. All integrated circuits on this motherboard are sensitive to static electricity. To avoid damaging components from electrostatic discharge, please do not remove the board from the anti-static packing before discharging any static electricity to your body, by wearing a wrist-grounding strap. The manufacturer is not responsible for any damage to the motherboard due to improper operation.

Specification:

Model	ENDAT-4066i
Form Factor	Mini-ITX 170 mm x 170 mm (6.69"x6.69")
System Chipset	INTEL 865GV + ICH5
CPU Supporting	533/400 FSB with 478 pin PENTIUM4/Celeron/Celeron D processor
Memory	1 x 184 pin DDR socket support DDR 400/333/266 up to 1GB
Ethernet	INTEL 82801ER/EB (ICH5) + PHY (Intel 82562EX)
VGA	INTEL 865GV Graphic Controller with DVMT up to 96MB(max)
LCD interface	Onboard LVDS support 18/24/36/48bit Single/Dual Channels via internal box header **(optional)**
Display ratio	4:3 and 16:9
Serial / Parallel	2 Serial Port w/+5V, +12V Power Selector / 1 Parallel port (**Optional** to 6 Serial ports via I/O kit)
Watchdog Timer	Winbond 83627THG on-chip support 1 to 255 seconds/minutes
IDE Connector	1 x 40pin IDE connector support UDMA 33/66/100 1 x 44pin IDE connector support Slim type HDD
SATA Connector	Support 1 port 150MHz Serial ATA Device
AUDIO	On-board support AC'97 with 1.2W amplifier
CMOS backup	EEPROM backup customized setting in system BIOS
Expansion Slot	One PCI expansion up to 3 PCI slots via riser card with PCI 2.2 compliance
I/O Port	PS/2 Keyboard / Mouse Connector
	2 x USB (2.0) + RJ-45 Connector w/LED indicator
	D-sub Connector for COM 1,2 (internal box header for COM2) with POWER
	1 x 25 Pins D-Sub Connector (LPT)
	1 D-Sub Connector (VGA)
	MIC-IN, Line-In, SPK-Out with COM2 Module Deck
	Internal pin header: KB, MS, USB (2.0) x4, AUX/CD-IN, SPDIF IN/OUT, RF MIC IN, IR
Digital IO	2 bit input and 2 bit output (TTL level) by pin header
RS-422/485	Via COM2 **(Optional)**
USB Port	6 x USB2.0 onboard
Power Supply	Support P4-ATX power supply

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Chapter 1. Introduction

ENDAT-4066i supports high performance processor of Intel® Pentium4®, Celeron® and Celeron D ® with 400 and 533 Front Side Bus. It also supports high speed DDR memory with 64-bit wide interfaces with non-ECC DIMM (up to 1GB). Only Double Data Rate (DDR) SDRAM memory is supported and the speed of memory can be 266, 333 and 400 MHz.

ENDAT-4066i provides an integrated graphics (Intel® Extreme Graphics 2) accelerator delivering cost competitive 3D, 2D, and video capabilities.
ENDAT-4066i video engines support video conferencing and other video applications. Instead of a dedicated local graphics memory interface, ENDAT-4066i uses a UMA configuration for optimal memory utilization and performance that deliver 3D graphics with sharp images, fast rendering, smooth motion and extreme detail.

ENDAT-4066i contains one integrated Serial ATA host controllers capable of independent DMA operation on two ports. The SATA controllers are completely software transparent with the IDE interface, while providing a lower pin count and higher performance. The data transfer rate is up to 150 MB/s.

ENDAT-4066i is an ideal model for various kind of application:

- POS system
- KIOSK
- Interactive system
- Airport Terminal Controller
- Industrial controller
- Digital entertainment
- Embedded system equipment

1-1. Features

Basic Feature:

- Board format: Mini-ITX (170mm x 170 mm)
- Supports Socket 478 CPU (FSB 533/400 MHz)
- Digital I/O: 2 bits in and 2 bits out (3.3V)
- Supports DDR 266/ 333/ 400 SDRAM up to 1GB
- Serial ATA connector x 1
- Enhance IDE connector x 2
- Multiple I/O ports: COM port x 2; USB (2.0) x 6
- All COM ports with +5V, +12V power selector
- CMOS backup: EEPROM backup
- Watchdog Timer
- Intel 10/100 LAN and Audio function onboard
- With Intel embedded ATX PCI expansion design

Optional features:

- On board chip provides LVDS interface (18/24/36/48 bit, single/dual channels) or TV out signals (composite and S-video)
- Second I/O kit for extra 4 COM ports (COM3 to COM6)
- RS 422/485 via COM 2
- Barebones system: niche into Unicorn U-8000 Chassis

Full Software Support:

- Drivers for major operating systems and APIs: Windows 9x / ME, Windows 2000, Windows XP, Direct3D, DirectDraw and DirectShow, OpenGL ICD for Windows 9x, and 2000, and DXVA for Windows 2000 and Windows XP

1-2. Unpacking

The motherboard comes securely packaged in a sturdy cardboard shipping carton. In addition to the User's Manual, the motherboard package includes the following items:

ENDAT-4066i System Board

HDD / IO Cables

LCD cable (Optional)

CDROM Driver includes: Drivers for Windows 98, ME, 2000, XP and AMI / AWARD FLASH ROM utilities.

Driver utilities for on-board VGA drivers, LAN adapter

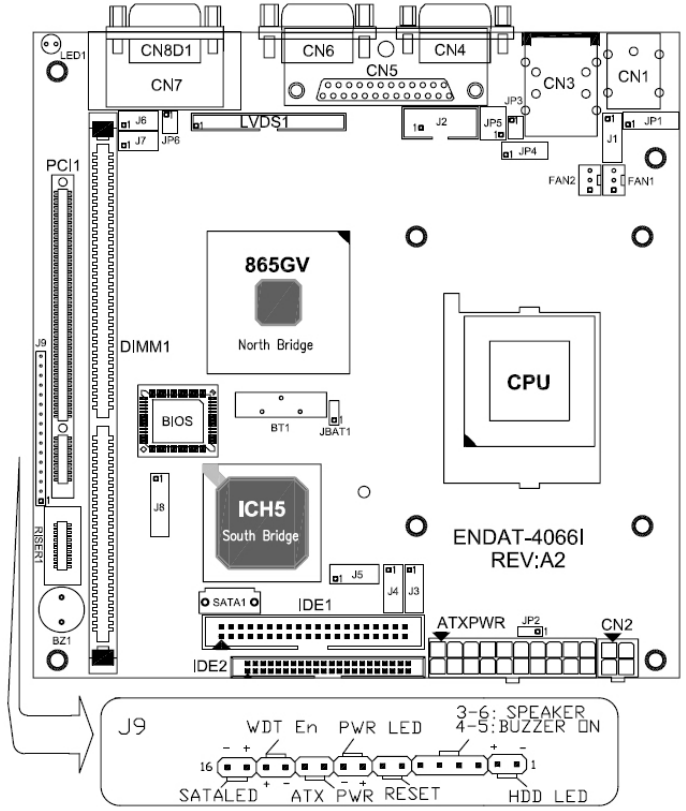
If any of these items are missing or damage, please contact the dealer from whom you purchase the motherboard. Save the shipping material and carton in the event that you want to ship or store the board in the future.

Note: Please leave the motherboard in its original package until you are ready to install it!

1-3. Electrostatic Discharge Precautions

Make sure you properly ground yourself before handling the motherboard, or other system components. Electrostatic discharge can easily damage the components. Note: You must take special precaution when handling the motherboard in dry or air-conditioned environments.

1-4. Motherboard Layout



Chapter 2. Setting up the Motherboard

2-1. Jumpers And Connectors

Jumpers/Connectors Overview:

Function	Jumpers/Connectors
Cooling Fan Connector	FAN1, FAN2
P4 Power Supply Connector 2*2	CN2
P4 Power Supply Connector 2*10	ATXPWR
LCD Panel Connector	LVDS1
LCD Voltage Selector	JP6
Clear CMOS	JBAT1
Pin Header for external device	JP1
PS/2 Mouse/KB Pin Header	J1
PS/2 Mouse/KB	CN1
USB Port	CN3, J3, J4
IDE 1, IDE 2	IDE1, IDE2
SATA 1	SATA1
IDE active LED	J9: Pin 1(-), Pin 2(+)
External Speaker	J9: Pin 3, Pin 6
Buzzer On/Off	J9: Pin 4, Pin 5
Hardware Reset Switch	J9: Pin 7, Pin 8
Power LED	J9: Pin 9(+), Pin 10(-)
ATX Power Supply On/Off Switch	J9: Pin 11, Pin 12
WDT Function Enable/Disable	J9: Pin 13, Pin 14
SATA LED	J9: Pin 15(+), Pin 16(-)
DDR SDRAM socket	DIMM1
LAN Connector	CN3
CRT Output	CN6
Power Good Selector	JP2
COM1 & COM2 Voltage Selector	JP4
COM1	CN4
COM2	CN8D1
LPT1	CN5
MIC In, Line In, Line Out	CN7
COM2 Pin Header	J2
RS232 / 485 Selector for COM2	JP3 & JP5

Function	Jumpers/Connectors
DIGITAL I/O Pin Header	J5
CD In & Line Out Pin Header	J6
Microphone IN & LINE IN Pin Header	J7
LPC Super I/O Connector	J8

Please double-check the insertion and orientation of the LCD cable before applying power. Improper installation will result in permanent damage LCD panel.

Part 1: Onboard Jumpers

JP1: Pin Header for external device (2.0mm)

Pin No.	Signal (MS)	Pin No.	Signal (KB)
1	MS Data Out	**2**	KB Data Out
3	MS Data In	**4**	KB Data In
5	MS Data Out	**6**	KB CK Out
7	MS CK In	**8**	KB CK In
9	KEY	**10**	KEY
11	+5V(DC)	**12**	+5V(DC)
13	GND	**14**	GND

Default setting is: 1-3, 5-7, 2-4 and 6-8 closes

JP2: Power Good Selector (2.0mm)

Pin 1-2 *	External Power Good (Default)
Pin 2-3	Internal Power Good

JP3, JP5: RS232 / 422 / 485 Selector for COM2 (2.0mm)

TYPE	JP5 (3x4/2mm)	JP3 (2x3/2mm)
RS-232 *	1-2, 4-5, 7-8, 10-11	1-2
RS-422	2-3, 5-6, 8-9, 11-12	3-4
RS-485	2-3, 5-6, 8-9, 11-12	5-6

JP4: COM1, 2 Voltage Selector (2.0mm)

Voltage	+12V(DC)	R.I. *	+5V(DC)
COM1 (JP4)	1-2	3-4	5-6
COM2 (JP4)	7-8	9-10	11-12

JP6: Voltage Selector for LCD panel (2.0mm)

LCD power	JP6 (2.54mm)
Pin-1, 2	+3.3V
Pin-3, 4	+5V
Pin-5, 6 *	+12V

Caution: Improper setting will damage LCD panel.

UC-COM56: Voltage Selector for COM3~COM6 (2.0mm)(Optional Item)

Voltage	+12V(DC)	R.I. *	+5V(DC)
COM4 (JP1), COM6(JP2)	1-2	3-4	5-6
COM3 (JP1), COM5(JP2)	7-8	9-10	11-12

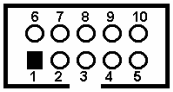
Part 2: Onboard Connectors

J1: PS/2 Keyboard / Mouse Pin Header Connector (2.54mm)

Pin No.	Signal (KB)	Pin No.	Signal (MS)
1	KB Data	2	MS Data
3	KEY	4	KEY
5	GND	6	GND
7	+5V(DC)	8	+5V(DC)
9	KB_CLK	10	MS_CLK

J2: Box Header Type Connector for COM2 port (RS-232)

Pin No.	Function	Pin No.	Function
1	DCD	6	DSR
2	RXD	7	RTS
3	TXD	8	CTS
4	DTR	9	RI
5	GND	10	N.C



J3, J4: USB port (2.54mm)

Pin No.	Function	Pin No.	Function
1	USB_VCC	2	USB_VCC
3	USBD 2/4-	4	USBD 3/5-
5	USBD 2/4+	6	USBD 3/5+
7	USB_GND	8	USB_GND
9	USB_GND	10	USB_GND

J5: DIGITAL I/O (2.54mm)

Pin No.	Function	Pin No.	Function
1	DIO-O0	2	DIO-I0
3	DIO-O1	4	DIO-I1
5	+12V	6	+12V
7	KEY	8	+3.3V
9	GND	10	GND

J6: CD IN, LINE OUT (2.54mm)

Pin No.	Function	Pin No.	Function
1	LO_J_R	2	CDR
3	GND_AUD	4	CDGND
5	GND_AUD	6	CDGND
7	LO_J_L	8	CDL

J7: Microphone IN & LINE IN (2.54mm)

Pin No.	Function	Pin No.	Function
1	MICIN1	2	LINE_R
3	GND	4	GND
5	GND	6	GND
7	MICIN2	8	LINE_L

J9: Header for Case Panel (2.54mm)

Pin No.	Function
1(-), 2(+)	IDE active LED
3,6	External Speaker
4,5	Buzzer On/Off
7,8	Hardware Reset Switch
9(+), 10(-)	Power LED
11,12	ATX Power On/Off
13,14	Close: Enable WDT function
15(+), 16(-)	SATA active LED

ATXPWR: Power Supply Connector (3.96mm)

Pin No.	Function	Pin No.	Function
1	+3.3V	2	+3.3V
3	+3.3V	4	-12V
5	GND	6	GND
7	+5V	8	PS-ON
9	GND	10	GND
11	+5V	12	GND
13	GND	14	GND
15	POWER OK	16	-5V
17	5V_SB	18	+5V
19	+12V	20	+5V

CN2: Power Supply Connector (3.96mm)

Pin No.	Function	Pin No.	Function
1	GND	2	+12V
3	GND	4	+12V

FAN1, FAN2: CPU / 2nd Cooling Fan Connector

Pin No.	Function
1	Sensor Pin.
2	+12V
3	GND

CN5: Printer (LPT1) Port

Pin No.	Description	Pin No.	Description
1	STB#	10	ACK#
2	PD0	11	BUSY
3	PD1	12	PE
4	PD2	13	SLCT
5	PD3	14	AFD#
6	PD4	15	ERR#
7	PD5	16	INIT#
8	PD6	17	SLIN#
9	PD7	18-25	GND

CN6: CRT Connector

Pin No.	Description	Pin No.	Description
1	RED	9	N.C / +5V
2	GREEN	10	GND
3	BLUE	11	N.C
4	N.C	12	DDC DAT
5	GND	13	H-Sync
6	GND	14	V-Sync
7	GND	15	DDC CLK
8	GND		

D-SUB Type Connector for COM2 port (RS-422→ 4 Wire)

Pin No.	Function	Pin No.	Function
1	–TXD	6	NA
2	+RXD	7	NA
3	+TXD	8	NA
4	NA	9	–RXD
5	NA		

D-SUB Type Connector for COM2 port (RS-485→ 2 Wire)

Pin No.	Function	Pin No.	Function
1	Data –	**6**	NA
2	NA	**7**	NA
3	Data +	**8**	NA
4	NA	**9**	NA
5	NA		

D-SUB Type Connector for COM port (RS-232)

Pin No.	Description	Pin No.	Description
1	DCD	**6**	DSR
2	RXD	**7**	RTS
3	TXD	**8**	CTS
4	DTR	**9**	RI
5	GND		

IDE1 Connector

Pin No.	Description	Pin No.	Description
2,19,22	GND	**13**	IDE data2
24.26.30	GND	**14**	IDE data13
40	GND	**15**	IDE data1
20,21,28	N.C	**16**	IDE data14
29,32,34	N.C	**17**	IDE data0
1	IDE reset	**18**	IDE data15
3	IDE data7	**23**	IDE Write
4	IDE data8	**25**	IDE Read
5	IDE data6	**27**	IDE Ready
6	IDE data9	**31**	IDE IRQ
7	IDE data5	**33**	IDE A1
8	IDE data10	**35**	IDE A0
9	IDE data4	**36**	IDE A2
10	IDE data11	**37**	IDECS1#
11	IDE data3	**38**	IDESC3#
12	IDE data12	**39**	HDLED0#

IDE2: Slim IDE2 Connector (44Pins with 2.0mm)

Pin No.	Description	Pin No.	Description
1	IDE Reset#	**2**	GND
3	IDE data7	**4**	IDE data8
5	IDE data6	**6**	IDE data9
7	IDE data5	**8**	IDE data10
9	IDE data4	**10**	IDE data11
11	IDE data3	**12**	IDE data12
13	IDE data2	**14**	IDE data13
15	IDE data1	**16**	IDE data14
17	IDE data0	**18**	IDE data15
19	GND	**20**	N.C.
21	IDE REQ	**22**	GND
23	IDE IOW#	**24**	GND
25	IDE IOR#	**26**	GND
27	IDE Ready	**28**	GND
29	IDE ACK#	**30**	GND
31	IDE IRQ	**32**	N.C.
33	IDE A1	**34**	P66DET
35	IDE A0	**36**	IDE A2
37	IDECS1#	**38**	IDESC3#
39	HDLED#	**40**	GND
41	VCC(+5V)	**42**	VCC(+5V)
43	GND	**44**	N.C.

LVDS1: Dual LVDS Channel (2.0mm)

Pin No.	Signal	Pin No.	Signal
1	VBL (+12V)	**2**	VBL (+12V)
3	GND	**4**	GND
5	DISP.ON/OFF	**6**	GND
7	LVDD	**8**	LVDD
9	GND	**10**	GND
11	TxO0+	**12**	TxO0-
13	TxO1+	**14**	TxO1-
15	TxO2+	**16**	TxO2-
17	TxO3+	**18**	TxO3-
19	TxOC+	**20**	TxOC-
21	GND	**22**	KEY
23	TxE0+	**24**	TxE0-
25	TxE1+	**26**	TxE1-
27	TxE2+	**28**	TxE2-
29	TxE3+	**30**	TxE3-
31	TxEC+	**32**	TxEC-
33	LVDD	**34**	LVDD
35	GND	**36**	GND
37	GND	**38**	GND
39	VBL (+12V)	**40**	VBL (+12V)

Please make sure the Pin 1 location before inserting the LCD connector.

LCD panel ID:

ID No.	Resolution
1	800 x 600 with 18bit
2	1024 x 768 with 24bit
3	1280 x 1024 with 48bit
4	1280 x 768 with 24bit

2-2. Installing Memory

ENDAT-4066i system board offers one 184pin DDR SDRAM socket supports up to 1GB memory and the speed can be 200/ 266/ 333/ 400.

2-3. Shared VGA Memory

ENDAT-4066i is using built-in AGP VGA controller with INTEL DVMT **up to 96MB** of system memory. The amount of video memory on motherboard determines the number of colors and the video graphic resolution.

2-4. Installing Riser Card

Installing Riser Card (Max. 3 PCI Slots on Riser Card)

PCI Slot	INT	ADSEL
PCI 1	A,B,C,D	AD20
PCI 2	B,C,D,A	AD22
PCI 3	C,D,A,B	AD23
PCI 4	D,A,B,C	AD25

The default INT/AD-select for ENDAT-4066i All-In-One motherboard is listed in the above table.

2-5. Assigning IRQs for Expansion Cards

Some expansion cards require an IRQ (Interrupt request vector) to operate. Generally, each IRQ must be exclusively assigned to specific use. In a standard design, there are 16 IRQ available with 11 of them already in used by other part of the system.

Some PCI expansion cards need IRQ; any remaining IRQ could be assigned to PCI Bus. Microsoft's Diagnostic (MSD.EXE) utility included in the Windows directory can be used to see their map. Clients can not have more than one device apply the same IRQ in the system or it will cause the system hang up, crash, and unexpected results. To simplify the process, this motherboard complies with the Plug and Play (PnP) specifications, which was developed to allow automatic system configuration. Whenever a PnP-compliant card is added to the system, PnP card and IRQs will automatically assigned if available. The PCI and PnP configuration in the BIOS setup utility can indicate which IRQs have being used by Legacy cards.

In the PCI Bus design, the BIOS is automatically assigned an IRQ to a PCI slot that

has a card in it which requires an IRQ. To install PCI cards via riser card, you need to set the correct "ADSEL" and "INT" (interrupt) assignment on the jumper of riser card.

IRQ	Status	Assignment
0	Used	Timer
1	Used	Keyboard
2	Used	Second 8259
3	Used	COM2
4	Used	COM1
5	Used	COM3
6	Used	Floppy Disk
7	Used	LPT1
8	Used	RTC
9	Used	LPT2 or Audio
10	Used	COM4
11	Used	LAN Adapter (on board)
12	Used	PS/2 Mouse
13	Used	Coprocessor
14	Used	Hard Disk (IDE 1)
15	Used	Reserved (IDE 2)

2-6. Watchdog Timer

Watchdog Timer (WDT) is a special design for system monitoring to secure the system work normally. WDT has an independent clock from the oscillator and could set time and clear/refresh WDT counter function. When time is up, WDT will send hardware RESET signal to reset system.

Timeout Value Range
-1 to 255
-Second or Minute

Program Sample

```
#include <stdio.h>
#include <dos.h>
#include <dir.h>
void show_ver();
void main()
{
        unsigned int tt;
        clrscr();
        show_ver();
        tt=0;
        while((tt==0)||(tt>255))
        {
                printf("\n\nPlease key in how many seconds you want to reset system
(1~255):");
                scanf("%d",&tt);
        }
        outportb(0x2e,0x87);    //Unlock register
        outportb(0x2e,0x87);    //Unlock register
        outportb(0x2e,0x07);    //Set Logic Device number pointer
        outportb(0x2f,0x08);    //Set Logic Device number
        outportb(0x2e,0xf5);    //Set active register is CRF5
        outportb(0x2f,0x00);    //Set register value (bit3=1: minute. =0: second)
        outportb(0x2e,0xf7);    //Set active register is CRF7
        outportb(0x2f,0x00);    //Disable all WDT interrupt (bit7=Mouse,
bit6=Keyboard)
        outportb(0x2e,0xf6);    //Set active register is CRF6
        outportb(0x2f,tt); //Set time out value of WDT
}

void show_ver()
{
        unsigned char tmp0;
        printf("Designed by ROBERT LIOU of UNICORN computer corp.
\n2004/03/02  release version:1.0a\n");
        printf("This program is design for test Watchdog Timer for W83627.\n");
}
```

2-7. Digital I/O

1) Pin out of digital I/O header (J13):

Pin No.	Function	Pin No.	Function
1	DIO-O0	**2**	DIO-I0
3	DIO-O1	**4**	DIO-I1
5	+12V	**6**	+12V
7	KEY	**8**	+3.3V
9	GND	**10**	GND

2) Digital input control port (48Fh):

The digital input port can be read directly from port address "**48Fh**" (data mapping to **bit0** for **I0** and **bit3** for **I1** and the default value is "**1Bh**". The input level is **3.3V** (+/-5% tolerance).

The sample code is shown below (using TurboC/C++ 3.0):

```
#define INPUT_PORT 0x48f
unsigned char read_data;
read_data=inportb(INPUT_PORT);  //Read status from INPUT port
```

Attention: The SB chip might be damaged by over specifying voltage.

3) Digital output control port (48Eh):

The digital output port can be written directly by porting address "**48Eh**" (data mapping to **bit5 for OUT0** and **bit2 for OUT1**.

The sample code is shown below (using TurboC/C++ 3.0):

```
#define OUT_PORT 0x48e
outportb(OUT_PORT,0x20);  //Set OUT0 as logic "1" and OUT1 as "0"
outportb(OUT_PORT,0x04);  //Set OUT1 as logic "1" and OUT0 as "0"
outportb(OUT_PORT,0x24);  //Set OUT0 and OUT1 as logic "1"
```


Chapter 3. AWARD BIOS SETUP

Phoenix – Award BIOS CMOS Setup Utility

> **Standard CMOS Features**	> **Frequency/Voltage Control**
> **Advanced BIOS Features**	> **Load Fail-Safe Defaults**
> **Advanced Chipset Features**	> **Load Optimized Defaults**
> **Integrated Peripherals**	> **Set Supervisor Password**
> **Power Management Setup**	> **Set User Password**
> **PnP/PCI Configurations**	> **Save & Exit Setup**
> **PC Health Status**	> **Exit Without Saving**

Use the CMOS setup program to modify the system parameters to reflect the environment installed in your system and to customize the system as desired. Press the <DEL> key to enter into the CMOS setup program when you turn on the power. Settings can be accessed via arrow keys. Press <Enter> to choose an option to configure the system properly.

In the main menu, press F10 or "SAVE & EXIT SETUP" to save your changes and reboot the system. Choose "EXIT WITHOUT SAVING" to ignore the changes and exit the setup procedure. Pressing <ESC> at anywhere during the setup will return to the main menu.

"Advanced BIOS Features", "Advanced Chipset Features" and "PnP/PCI Configurations" requires board knowledge on PC/AT system architecture and Intel chipset specification. They intend to be used by well-trained technicians and experienced users. Press the <F6> key to save CMOS setting to EEPROM, Press <F7> key can load CMOS setting from EEPROM. Incorrect setup could cause system malfunctions.

3-1. Standard CMOS Features

The Standard Setup is used for the basic hardware system configuration. The main function is for Data/Time and Hard Disk Drive settings.

Item	Available Options:
Date (mm:dd:yy)	
Time (hh:mm:ss)	
IDE Channel 0 Master:	Auto
IDE Channel 0 Slave :	Auto
IDE Channel 1 Master:	Auto
IDE Channel 1 Slave :	Auto
IDE Channel 2 Master:	Auto
IDE Channel 3 Master:	Auto
Video	EGA/VGA
Halt On	All , But Keyboar

3-2. Advanced BIOS Features

This section allows you configuring your system for basic operation. You have the opportunity to select the system's default speed, boot-up priority, keyboard operation and security.

Item	Available Options:
CPU Feature	**Press Enter**
Hard Disk Boot Priority	**Press Enter**
Virus Warning	**Enabled**
CPU L1 & L2 Cache	**Enabled**
Quick Power On Self Test	**Enabled**
USB Flash Disk Type	**Auto**
First Boot Device	**Hard Disk**
Second Boot Device	**CDROM**
Third Boot Device	**Disabled**
Boot Other Device	**Enabled**
Boot Up NumLock Status	**On**
Gate A20 Option	**Fast**
Typematic Rate Setting	**Disabled**
Typematic Rate (Chars/Sec)	**6**
Typematic Delay (Msec)	**250**
Security Option	**Setup**
APIC Mode	**Enabled**
MPS Version Control For OS	**1.4**
OS Select For DRAM > 64MB	**Non-OS2**
Report No FDD for WIN 95	**Yes**
Delay For HDD (Secs)	**0**
Small Logo(EPA) Show	**Enabled**

- **APIC Mode**

  This item can enable or disable the APIC (Advanced Programmable Interrupt Controller). Due to compliance to PC2001 design guide, the system is able to run in APIC mode. Enabling APIC mode will expand available IRQs resources for the system. Leave this field in its default setting.

- **MPS Version Control For OS**

  This item allows you selecting which MPS (Multi-Processor Specification) version to be used for the operating system. You need to select the MPS version

that is supported by your operating system. To find out which version to use, consult the vendor of your operating system.

3-3. Advanced Chipset Features

This section allows you to configure the system based on the specific features of the installed chipset. This chipset manages bus speeds and the access to the system memory resources, such as DRAM and the external cache. It also coordinates the communications with the PCI bus. It must be stated that these items should never be altered. The default settings have been chosen because they provide the best operating conditions for your system. You might consider making any changes only if you discover that the data has been lost while using your system.

Item	Available Options:
DRAM Timing Selectable	By SPD
CAS Latency Time	2
Active to Precharge Delay	6
DRAM RAS# to CAS# Delay	3
DRAM RAS# Precharge	3
Memory Frequency For	Auto
System BIOS Cacheable	Enabled
Video BIOS Cacheable	Enabled
AGP Aperture Size (MB)	128
Init Display First	Onboard/AGP
On Chip VGA	Enabled
On Chip Frame Buffer Size	16MB
Boot Display	CRT
Panel Number	1

- **Memory Frequency For**

This main board supports different memory frequencies depend on the CPU FSB (Front Side Bus) and the type of DDR DIMM.

CPU FSB	DDR DIMM Type	Memory Frequency
533 MHz	PC2700/PC2100	333/266 MHz
400 MHz	PC2100	266 MHz

- **AGP Aperture Size (MB)**

This function determines the amount of system memory that is given to the AGP card. This is a dynamic memory allotment in that the AGP card will only use the amount of memory that it needs. The remaining memory, which is not in use, will be available for the system.

- **On-Chip Frame Buffer Size**

This field is used to select the onboard VGA's frame buffer size that is shared from the system memory.

- **Boot Display**

This field is used to select the type of display to use when the system boots.

CRT	Select this option if you want the system to boot the CRT display.
LFP	Select this option if you want the system to boot the LCD flat panel display. **(Optional Item)**
CRT+LFP	Select this option if you want the system to boot both the CRT and LCD flat panel display. **(Optional Item)**
TV	Select this option if you want the system to boot the TV display. **(Optional Item)**

- **Panel Number (Optional Item)**

Number	Panel Display
1	800x600, one channel LVDS for 18-bit panels
2	1024x768, one channel LVDS for 24-bit panels
3	1280x1024, tow channel LVDS for 48-bit panels
4	1280x768 (16: 9), one channel LVDS for 24-bit panels

If you apply one of the standard panels shown above, select the appropriate option according to the type of panel that you apply. Or, please contact your dealer or sales representative for custom-made BIOS that will suit the panel that you apply.

- **TV Format (Optional Item)**

Auto / NTSC_M / NTSC_M_J / NTSC_433 / NTSC_N / PAL_B PAL_G / PAL_D / PAL_H / PAL_I / PAL_M / PAL_N / PAL_60 SECAM_L / SECAM_L1 / SECAM_B / SECAM_D / SECAM_G SECAM_H

- **CPU to PCI Write Buffer**

  When enabled, up to four D words of data can be written to the PCI bus without interrupting the CPU. When disabled, a write buffer is not used and the CPU read cycle will not be completed until the PCI bus signals is ready to receive the data.

- **PCI Delay Transaction**

  The chipset has an embedded 32-bit posted write buffer to support delay transaction cycles. Select Enabled to support compliance with PCI specification version 2.2.

- **OnChip USB**

  Select "Enabled" if your system contains a Universal Serial Bus (USB) controller and you have a USB peripheral. **The "Assign IRQ for USB" has to be set to Enabled on "PnP/PCI Configuration" (when the USB be used.)**

- **Onboard LAN Boot ROM**

  The default setting is enabled or disabled LAN boot up function.

3-4. Integrated Peripherals

The IDE hard drive controllers support up to two separate hard drives. These drives have a master/slave relationship that is determined by the cabling configuration used to attach them to the controller. Your system supports two IDE controllers--a primary and a secondary--so you can install up to four separate hard disks.

Integrated Peripherals

Item	Available Options:
OnChip IDE Device	Press Enter
Onboard Device	Press Enter
Super IO Device	Press Enter
Onboard Serial Port 3	3E8
Serial Port 3 Use IRQ	IRQ5
Onboard Serial Port 4	2E8
Serial Port 4 Use IRQ	IRQ5
Onboard Serial Port 5	4F8
Serial Port 5 Use IRQ	IRQ5
Onboard Serial Port 6	4E8
Serial Port 6 Use IRQ	IRQ5

OnChip IDE Device

Item	Available Options:
IDE HDD Block Mode	Enabled
On-Chip Primary PCI IDE	Enabled
IDE Primary Master PIO	Press Enter
IDE Primary Slave PIO	Auto
IDE Primary Master UDMA	Auto
IDE Primary Slave UDMA	Auto
On-Chip Secondary PCI IDE	Enabled
IDE Secondary Master PIO	Auto
IDE Secondary Slave PIO	Auto
IDE Secondary Master UDMA	Auto
IDE Secondary Slave UDMA	Auto
On-Chip Serial ATA	Auto
Serial ATA Port0 Mode	SATA0 master
Serial ATA Port1 Mode	SATA1 master

- **IDE HDD Block Mode**

  Block mode is also called block transfer, multiple commands, or multiple sectors read/write.

- **IDE Primary Master/Slave PIO and IDE Secondary Master/Slave PIO**

  The four IDE PIO (programmed Input/Output) fields let you set a PIO mode (0-4) for each IDE device that the internal PCI IDE interface supports. Modes 0 through 4 provide successively increased performance. In Auto mode, the system automatically determines the best mode for each device.

- **IDE Primary Master/Slave UDMA and IDE Secondary Master/Slave UDMA**

  These fields allow you to set the Ultra DMA in use. When Auto is selected, the BIOS will select the best available option after checking your hard drive or CD-ROM.

• On-Chip Serial ATA

Disabled	Disables the onboard SATA.
Auto	The system will detect the existing SATA and IDE drives then automatically set them to the available master/slave mode.
Combined Mode	This option allows you to use both IDE and SATA drives; allowing a maximum of 4 drives. You must manually set the SATA drives' master/slave mode in the "Serial ATA Port0 Mode" and "Serial ATA Port1 Mode" fields.
Enhanced Mode	This option allows you to use both IDE and SATA drives; allowing a maximum of 6 drives.
SATA Only	This option automatically sets the SATA drives to Primary Master and Secondary Master modes. Since both drives are in master mode, you cannot set the IDE drives to Master mode. The "Serial ATA Port0 Mode" and "Serial ATA Port1 Mode" fields will not be configurable.

• Serial ATA Port0 Mode and Serial ATA Port1 Mode

These fields are used to select the master/slave mode of the serial ATA drives. Make sure they do not conflict with the settings of the IDE hard drives.

Onboard Device

Item	Available Options:
USB Controller	**Enabled**
USB 2.0 Controller	**Enabled**
USB Keyboard Support	**Enabled**
USB Mouse Support	**Disabled**
AC97 Audio	**Enabled**
Onboard LAN Boot ROM	**Enabled**
Onboard CSA LAN Boot ROM	**Enabled (Optional Item)**
CSA LAN (Giga-LAN)	**Enabled (Optional Item)**

SuperIO Device

Item	Available Options:
POWER ON Function	**Button ONLY**
KB Power ON Password	**Enter**
Hot Key Power ON	**Ctrl-F1**
Onboard Serial Port 1	**3F8/IRQ4**
Onboard Serial Port 2	**2F8/IRQ3**
UART Mode Select	**Normal**
RxD, TxD Acitve	**Hi,Lo**
IR Transmission Delay	**Enabled**
UR2 Duplex Mode	**Half**
Use IR Pins	**IR-Rx2Tx2**
Onboard Parallel Port	**378/IRQ7**
Parallel Port Mode	**SPP**
EPP Mode Select	**EPP1.9**
ECP Mode Use DMA	**3**
PWRON After PWR-Fail	**Off**

3-5. Power Management Setup

The Power Management Setup allows users configuring the system to save energy in a most effective way while operating in a manner consistent with their own style of computer use.

Item	Available Options:
ACPI function	Enabled
ACPI Support Type	S1(POS)
Run VBIOS if S3 Resume	Auto
Power Management	User Define
Video Off Method	DPMS
Video Off In Suspend	Yes
Suspend Type	Stop Grant
Suspend Mode	Disabled
HDD Power Down	Disabled
Soft-Off by PWR-BTTN	Instant-Off
Wake Up by PCI Card	Enabled
Power On by Ring	Enabled
Wake Up On LAN	Enabled (Optional Item)
Resume by Alarm	Disabled
Date(of Month) Alarm	0
Time(hh:mm:ss) Alarm	0 : 0 : 0
Primary IDE 0	Disabled
Primary IDE 1	Disabled
Secondary IDE 0	Disabled
Secondary IDE 1	Disabled
FDD,COM,LPT Port	Disabled
PCI PIRQ[A-D]#	Disabled

- **ACPI Function**

  This function should be enabled only in operating systems that support ACPI. Currently, only Windows® 98SE/2000/ME/XP supports this function. When this field is enabled, the system will ignore the settings in the "Suspend Mode" and "HDD Power Down" fields. If you want to use the Suspend to RAM function, make sure this field is enabled then select"S3 (STR)" in the field below.

- **ACPI Suspend Type**

  This field is used to select the type of Suspend mode.

S1(POS)	Enables the Power On Suspend function.
S3(STR)	Enables the Suspend to RAM function.
S1 & S3	If S3 state is supported by the system, by default [S3] is automatically selected. Otherwise [S1] is selected.

3-6. PnP/PCI Configurations

This section describes the configuration of the PCI bus system. PCI is a system that allows I/O device to operate at speeds nearing the speed of the CPU itself, when communicating with its own special components. This section covers some very technical items. It is strongly recommended that only experienced users make any changes to the default settings.

Item	Available Options:
Reset Configuration Data	Disabled
Resources Controlled By	Auto(ESCD)
IRQ Resources	Press Enter
IRQ-3 assigned to	Reserved
IRQ-4 assigned to	Reserved
IRQ-5 assigned to	PCI Device
IRQ-7 assigned to	Reserved
IRQ-9 assigned to	PCI Device
IRQ-10 assigned to	PCI Device
IRQ-11 assigned to	PCI Device
IRQ-12 assigned to	PCI Device
IRQ-14 assigned to	PCI Device
IRQ-15 assigned to	PCI Device
PCI/VGA Palette Snoop	Disabled

- **Reset Configuration Data**

Enabled	The BIOS will reset the Extended System Configuration Data (ESCD) once automatically. It will then recreate a new set of configuration data.
Disabled	The BIOS will not reset the configuration data.

- **Reset Configuration Data**

Auto(ESCD)	The system will automatically detect the settings for you.
Manual	Choose the specific IRQ in the "IRQ Resources" field.

- **PCI/VGA Palette Snoop**

  When set to [Enabled], multiple VGA devices operating on different buses can handle data from the CPU on each set of palette registers on every video device. Bit 5 of the command register in the PCI device configuration space is the VGA Palette Snoop bit (0 is disabled).

3-7. PC Health Status

This screen shows the information of temperature, Fan speed and Vcore etc. It also can set CPU warning temperature to protect CPU.

PC Health Status

Item	Available Options:
Shutdown Temperature	H/W CHK
CPU Warning Temperature	**Enabled**
Current System Temp	42℃/ 107℉
Current CPU1 Temperature	28℃/ 82℉
Current CPU2 Temperature	53℃/ 127℉
Fan1 Speed	2556 RPM
Fan2 Speed	0 RPM
Vcore	1.45V
VIN0	3.34V
VIN1	11.79V
VIN2	-11.84V
VCC (V)	5.10V
VBAT (V)	3.24V
5VSB (V)	5.07V

3-8. Frequency / Voltage Control

Frequency/Voltage Control

Item	Available Options:
CPU Clock Ratio	**18 X**
Auto Detect DIMM/PCI Clk	**Enabled**
Spread Spectrum	**Disabled**

- **CPU Clock Ratio**

  The frequency ratio of some processors may have been locked by the manufacturer. If you are using this kind of processor, setting an extended ratio for the processor will have no effect. The system will instead use its factory default ratio.

- **Auto Detect DIMM/PCI Clk**

  When enabled, the system will automatically send clock signals to existing PCI devices.

- **Spread Spectrum**

  Leave this field in its default setting. Do not alter this setting unless advised by an engineer or technician.

Chapter 4. VGA, LCD Feature

4-1. VGA Feature

ENDAT-4066i provides an integrated graphics (Intel® Extreme Graphics 2) accelerator delivering cost competitive 3D, 2D, and video capabilities. It contains an extensive set of instructions for 3D operations, BLT (Block Level Transfers) and Stretch BLT operations, motion compensation, overlay, and display control. ENDAT-4066i video engines support video conferencing and other video applications. Instead of a dedicated local graphics memory interface, ENDAT-4066i applies UMA configuration for optimal memory utilization and performance that deliver 3D graphics with sharp images, fast rendering, smooth motion and extreme detail.

High bandwidth access to data is provided through the system memory port. ENDAT-4066i can access local graphics data located in system memory at 2.1 GB/s (DDR266) 2.7 GB/s (DDR333), or 3.2 GB/s (DDR400) in single-channel mode.

ENDAT-4066i applies Intel® DVMT for optimum the system utilization via system chipset. DVMT is a concept be applied in the Intel® 865GV chipset wherein the optimum amount of memory is dynamically allocated and de-allocated as needed for balanced graphics and system performance, through Intel® Direct AGP and a highly efficient memory utilization scheme.

The on-board Graphics Controller supports a full AGP implementation internally to remain compatible with existing software and programming models. However, since the engine is integrated, it enjoys a higher bandwidth and lower latency than is possible with discrete solutions.

The controller of ENDAT-4066i supports 2 types of display: CRT and LVDS panel .

4-2. LVDS Panel And TV Feature (optional)

These 2 devices are alternate feature; can not exist on the same system at the same time.

LVDS Panel Interface

The on-board graphic controller supports industry standard LCD panel, LVDS interface only, with 1 channel (18 or 24) and 2 channels (36 or 48bit) data width.

LVDS interface provides low voltage, high speed and low EMI serial DC-balanced differential data via optional onboard LVDS.

The flat panel interface provides or supports following functions for various panels:

- Generates LVDS flat panel channels like clock and data channel.
- Generates different video data formats to directly drive different types of panels (18, 24, 36 or 48bit)
- Wide screen resolution as 16:9 or 16:10.
- Vertical and horizontal expansion of video displays to LCD panel resolution
- Vertical and horizontal centering
- Panel power sequence

Please note that the default setting is with "CRT only". If the LCDdisplay features is required, the setting will need to be revised in the system BIOS setting: "Display Device" under "Advanced Chipset Features" unless clients specified the display type while order.

4-3. PCI Bus Audio Adapter Features

The Chipset built-in SoundBlaster Pro Hardware and Direct Sound Ready AC97' Digital Audio Controller

- Dual full-duplex direct sound channels between system memory and AC97' link
- PCI Master interface with scatter / gather and bursting capability
- 32byte FIFO of each direct sound channel
- Host based sample rate converter and mixer
- Standard v1.0 or v2.0 AC98' Codec interface for single or cascaded AC97' Codec's from multiple vendors
- Loop back capability for re-directing mixed audio streams into USB and 1394 speakers
- Hardware SoundBlaster Pro for Windows DOS box and real-mode DOS legacy compatibility
- Plug and Play with 4 IRQ, 4 DMA and 4 I/O space options for SoundBlaster Pro and MIDI hardware
- Hardware assisted FM synthesis for legacy compatibility
- Complete software driver support for Windows-95, Windows-98 and Windows-NT

4-4. Driver Utility Installation Guide

When finishing the installation of Windows platform (98/ME/2000/XP), please install the relative "INF" driver of Intel® chipsets firstly for compliance compatibility of hardware environment.

Please follow the step of CD-ROM driver and complete the VGA, AUDIO, ETHERNET and USB2.0 setup procedure. Insert the support CD that supplied with motherboard into CD-ROM driver, which enable the access with auto-run mode; or double –click the CD driver icon in "My Computer" to bring up the screen.

Please download or check from Intel® ***Web site: www.intel.com if you prefer to install the drivers individually or you need more information.***

Chapter 5. LAN Adapter

The on-board LAN adapter integrated of Single Chip Fast Ethernet Controller with options of one or dual LAN solution. It is highly integrated and requires no "glue" logic external memory on board. It runs in the bus master mode and directly sending/receiving Ethernet packet to/from memory. The On-board LAN adapter can directly fetch the system CPU. Also, it can transfer data Directly between I/O devices and system memory in the 32-bit bus master mode that provides low CPU utilization.

It complies with the IEEE 802.3x standard, IEEE802.3 standard and PCI Local Bus version 2.1 and transmits data on the network at 100 Mbps or 10 Mbps. It also operates in full-duplex mode that **doubles the network speed up to 20/200 Mbps when working with Fast Switching Hub.** Built-in one RJ-45 port for connection of 100Base-TX Fast Ethernet or 10Base-T Ethernet network, and automatically senses the connection type.

5-1. Features

- Full compliancy with PCI Rev. 2.1
- Complies with the Ethernet/IEEE 802.3u 100Base-TX and 10 Base-T industry standard
- Supports full-duplex operations, thus doubling the network speed up to 20Mbps on 10 Base-T Ethernet or 200Mbps on 100 Base-TX Fast Ethernet when setting in full duplex mode
- Two LED indicators to report network status
- One RJ-45 connector with Auto-sense cable type of 10 or 100Mbps network operation
- Supports PCI clock speed up to 33MHz, capable of zero wait states
- Supports Remote Boot ROM by system BIOS
- Provides a comprehensive setup program for displaying the adapter configuration and includes diagnostic on board or network tests
- Complete drivers for Novell, Windows NT and Windows 95/98 Packet driver etc

5-2. UTP Cable / RJ-45 Jack Definition

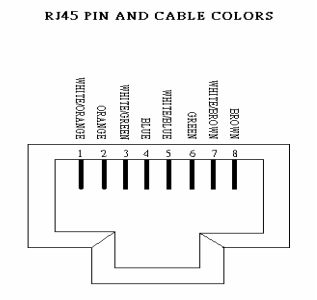
Straight through twisted pair cable is typically used to connect a hub to a server or workstation. In a straight through connection, Pin 1 at the server, Pin 2 at the hub connects to Pin 2 at the server, and so on. Figure A-1 shows the locations of pins on a standard RJ-45 plug on a twisted-pair cable.

Table A-1 shows the wiring in a straight-through twisted-pair cable (Pins 4, 5, 7 and 8 are not used).

Twisted Pair Number	Pin Number	Signal Description	To	Pin Number	Signal Description
1	1 2	TD+ TD–	→	1 2	TD+ TD–
2	3 6	RD+ RD–	→	3 6	RD+ RD–

RJ-45 Connector Pin Assignments

Figure A-1 shows the RJ-45 Connector pin assignments



5-3. Connecting 100Base-TX Fast Ethernet Network

The system board provides an RJ-45 port for connection to 100Base-TX Fast Ethernet or 10Base-T Ethernet Network with a single connection over unshielded twisted-pair (UTP). The adapter automatically operates at 10Mbps or 100Mbps when the appropriate 10/100Base hub is connected.

To connect the adapter to 100Base-TX Fast Ethernet Network, you need a twisted-pair Category 5 cable with RJ-45 modular jacks at both ends. This cable can have a maximum length of 300 feet (100 meters).

5-4. Connecting 10Base-T Ethernet Network

To connect the adapter to a 10Base-T Ethernet Network, you need a twisted-pair Category 3, 4 or 5 cables with RJ-45 modular jacks at both ends. This cable can have a maximum length of 300 feet (100 meters).

5-5. 10MBase/100MBase Installation Notice

- 100Mbps network must be shielded twisted-pair (STP) or Category 5 unshielded twisted-pair cable. Do not use a Category 3 or 4 cable for 100Mbps-network operation, it could cause data loss. Category 3 or 4 cable is good for 10Mbps network only.
- Category 5 cable is also good for 10Mbps operation. Use UTP Category 5 cable for the versatility to operate the network at either 100Mbps or 10Mbps speed without changing cable.
- Two pairs of wiring are required.
- Depending on building codes, different insulation materials may be required. Plenum-rated or TEFLON-coated wiring maybe required in some areas where fireproofing is required.
- The wire gauge should be between 18 and 26 AWG (Most telephone installations use 24-gauge wiring).
- UTP cable should meet the following requirements:
  1. Solid copper
  2. Nominal capacitance: less than 16pF/ft
  3. Nominal impedance: 100 ohms
  4. Nominal attenuation: less than 11.5db

Automatic Selection of the Media Type

While the driver installs, it automatically detects the media type based on the type of cable connected. Once you change the cable type, you must reinstall the driver to execute auto-detect again.

If the driver cannot detect which cable is connected or whether a cable is connected, look at cabling network driver (Ex. Modify net.cfg file parameters—force line speed=10 or 100).

10/100 Auto – Negotiation (N-Way)

Depending on the hub or connected device, the LAN adapter can automatically run at the appropriate speed, by using N-way, a feature that complies with the IEEE802.3 standard. It also works with any of the other IEEE-compliant products.

5-6. Remote BOOT ROM Function

This function is available with the BIOS programming for indicated operation system. The remote boot function allows the computer to boot up over the network, instead of using the local operating system device. This enables the system to be a diskless workstation environment.

5-7. LED Indicators

The system board comes with two LED indicators on the edge of the motherboard that indicates the network system status. If you experience any problems with the adapter, first make sure the appropriate driver is loaded, the proper cable is connected to the RJ-45 port and the hub complies with the adapter specification, such as 10Mbps 10Base-T or 100Mbps 100Bast-TX. Finally, recheck the LEDs.

FUDUP (Full Duplex) Indicator

When indicator is ON, it indicates Full-duplex mode: otherwise, it is OFF. The adapter supports full duplex at 10 or 100Mbps. If the switch-hub supports the N-way feature and full duplex, the system will automatically runs in full duplex mode.

Tx/Rx (Transmit/Receiver) Indicator

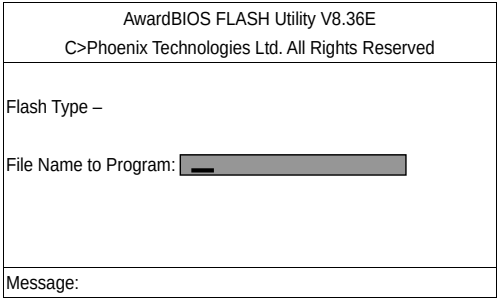
This indicator flashes to display that there is network activity – indicating transmission or reception data from the network.

Appendix A: FLASH Memory Utility

Using this utility to update the system BIOS from a disk file to the on board Flash memory. Be aware the improper change of the system BIOS will cause the system to malfunction.

Using utility as follows:

1. Insert the FLASH memory utility distribution floppy diskette in drive A:
2. At the DOS prompt, type A:>AWDFLASH and press <Enter>



3. Enter the name of the system BIOS disk file into the "File Name to Program" field

The following message appears in the "Message" field

4. Do you want to save BIOS (y/n)?
5. To update the FLASH memory from the system BIOS disk file, type Y
6. After complete updating, please re-boot the system (press "**F1**" key)
7. For upgrade BIOS procedure, please refer to our web site: http://www.unicorn-computer.com.tw

**** Please turn off system and clear CMOS data by JP8.***

**** Please restart your system and load optimal defaults setting.***

Appendix B: LCD Pin Assignment

LVDS1: Dual Channel LVDS (2.54mm)

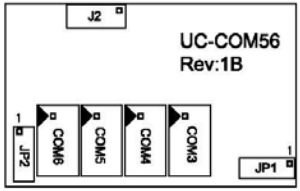
Pin No.	Signal	Pin No.	Signal
1	VBL (+12V)	**2**	VBL (+12V)
3	GND	**4**	GND
5	DISP.ON/OFF	**6**	GND
7	LVDD	**8**	LVDD
9	GND	**10**	GND
11	TxO0+	**12**	TxO0-
13	TxO1+	**14**	TxO1-
15	TxO2+	**16**	TxO2-
17	TxO3+	**18**	TxO3-
19	TxOC+	**20**	TxOC-
21	GND	**22**	KEY
23	TxE0+	**24**	TxE0-
25	TxE1+	**26**	TxE1-
27	TxE2+	**28**	TxE2-
29	TxE3+	**30**	TxE3-
31	TxEC+	**32**	TxEC-
33	LVDD	**34**	LVDD
35	GND	**36**	GND
37	GND	**38**	GND
39	VBL (+12V)	**40**	VBL (+12V)

Please make sure the Pin 1 location before inserting the LCD connector.

BIOS LCD panel type list (Advance Chipset Setup/Panel Type)

ID No.	Resolution
1	800 x 600 with 18bit
2	1024 x 768 with 24bit
3	1280 x 1024 with 48bit
4	1280 x 768 with 24bit

Appendix C: UC-COM56 Jumper Setting



JP1: COM3, 4 Voltage Selector (2.0mm)

Voltage	+12V(DC)	R.I. *	+5V(DC)
COM4 (JP1)	1-2	3-4	5-6
COM3 (JP1)	7-8	9-10	11-12

JP2: COM5, 6 Voltage Selector (2.0mm)

Voltage	+12V(DC)	R.I. *	+5V(DC)
COM6 (JP2)	1-2	3-4	5-6
COM5 (JP2)	7-8	9-10	11-12

J2: Digital I/O Box Header Connector (2.54mm)

Pin No.	Function	Pin No.	Function
1	DIO-O0	**2**	DIO-I0
3	DIO-O1	**4**	DIO-I1
5	+12V	**6**	+12V
7	KEY	**8**	+5V
9	GND	**10**	GND

Appendix D: Limited Warranty

Standard two years limited warranty on all our ENDAT series all-in-one motherboards and embedded boards. Products that become defective during the warranty period shall be repaired, or subject to manufacturer's option, replaced. The limited warranty applies to normal proper usage of the hardware and does not cover products that have been modified or subjected to unusual electrical or physical stress. Unicorn Computer Corp is not liable to repair or replace defective goods caused by improper using or use of unauthorized parts. The following situations will be charged:

1. The products during the warranty but defective caused by improper using or artificial external pressure and result in the components damages. According to the damage situation, the manufacturer has the rights to decide to repair or not. The manufacturer will charge the parts/repair cost and the returning shipping charge.
2. The products out of warranty will charge the parts/repair cost and the returning shipping charge as per the repair status.
3. The manufacturer has the rights to decide to repair or not based on the stock of parts for the products which are phased out of the production.
4. Please e-mail or fax the RMA Service Request Form when have the defective products.

RMA SERVICE REQUEST FORM

When requesting RMA service, please fill out this "RMA Service Request Form". This form needs to be shipped with your returns. Service cannot begin until we have this information.

RMA NO.:

Company:	Person to Contact:
Phone No:	Purchase Date :
Fax No. :	Applied Date :
Return Shipping Address:	

Model No.	Serial No.	Problem Code	Remark

- **Issue Code of defect.**

01	Second Times R.M.A.	11	Memory Socket Bad
02	No Screen (No Boot)	12	Hang Up Hardware
03	VGA (Display) Fail	13	Hang Up Software
04	CMOS Data Lost	14	PCB Problem
05	FDC Fail	15	CPU Socket Bad
06	HDC Fail	16	LAN Fail
07	Bad Slot	17	Audio Fail
08	BIOS Problem	18	Serial Port Fail
09	Keyboard Controller Fail	19	Parallel Port Fail
10	Cache RAM Problem	20	Others

Please specify the following when returning the RMA boards:
(1) Hardware Configuration (2) OS or Software (3) Testing Program

_____
Authorized Signature